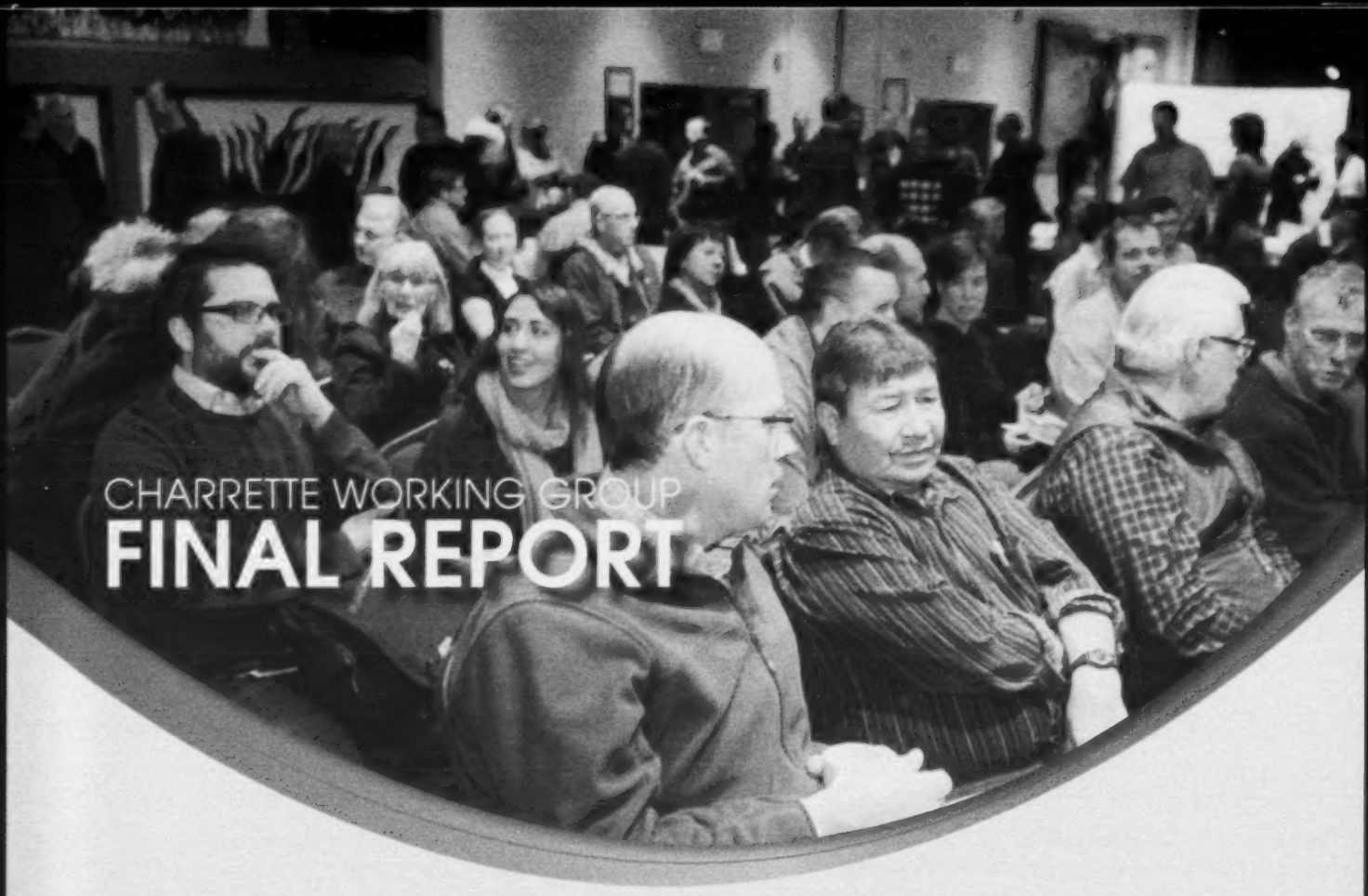

CHARRETTE WORKING GROUP

FINAL REPORT

2012 NORTHWEST TERRITORIES

energy charrette

Planning the NWT's energy future together

November 20nd-23rd

ARCTIC ENERGY ALLIANCE

NT ENERGY
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January 2013

2012 NORTHWEST TERRITORIES
energy charrette
Planning the NWT's energy future together

Executive Summary

The Northwest Territories Energy Charrette (Charrette), held in Yellowknife from November 20-23, 2012, brought together approximately 125 Northwest Territories (NWT) representatives and energy experts to discuss the territory's energy issues. The purpose of the Charrette was to gather public and stakeholder input to help inform the development of the 2013 Northwest Territories Energy Plan (Energy Plan) and the NWT Power System Plan.

The Charrette Working Group (WG), comprising representatives from various GNWT departments and agencies, the Arctic Energy Alliance, the Northwest Territories Association of Communities, NT Hydro Group of Companies and other stakeholders, assisted in the planning, facilitation and reporting for the Charrette. Key stakeholder engagement activities completed in conjunction with the Charrette included a Discussion Paper, stakeholder interviews and a public survey.

The format for the Charrette involved the provision of background information followed by facilitated discussions in breakout groups. Four group sessions were held and the results were recorded on flip chart paper.

The first group session involved the identification and discussion of a range of energy issues including:

- Geographical and climatic challenges in delivering energy services;
- Financing and ownership of energy infrastructure and projects;
- Challenges associated with using new technologies;
- Concerns about the impacts of the high cost of energy in most communities;
- Need for energy self-sufficiency and security (due to dependence on imported fuel);
- Lack of policies in key areas such as building energy standards, energy efficiency incentives and independent power production;
- Need to improve planning of energy projects and initiatives;
- Concerns about the environmental impacts including GHG emissions, fuel spills and impacts on the land;
- Challenges associated with ensuring the reliability of energy systems; and,
- Need for increased economic development and jobs in communities (rather than export of dollars to import fuel).

The second group session focused on using the energy issues from Session #1 to develop the key objectives that should be reflected in the Energy Plan. The WG further refined the objectives and developed the following list:

- Improve energy and electricity reliability
- Improve affordability
- Reduce environmental impacts

- Increase economic development
- Increase community and Aboriginal involvement in decision making

In the third group session, participants took part in an 'energy game' in which the objectives from Session #2, as well as information on energy supply and efficiency options available in the NWT, were used to develop high-level energy plans for two fictitious but typical NWT communities. The participants were asked to consider short term (5 year) and long term (20 year) planning horizons. Specific energy actions that garnered widespread support among the participants included:

Short term (next 5 years)

- Energy efficiency standards and programs
- Biomass energy systems (for space heating)
- Interim use of diesel-generated energy (to ensure reliability)
- Electric transmission lines (to connect to existing hydro facilities)

Long Term (next 20 years)

- Increased use of natural gas (and gas pipeline) and/or LNG
- Hydro development and transmission lines
- Energy efficiency standards and programs
- Biomass energy systems (space heating and power generation)

The last group session focused on the preparation and implementation of the NWT Energy Plan. Participants were asked to provide advice to the GNWT on various aspects related to the drafting and implementation of the Energy Plan. Some of the consensus results from this session included:

- The top-ranked energy objectives are reliability and affordability;
- GNWT should also consider human health when planning energy initiatives;
- GNWT needs to do much better in tracking fuel and electricity consumption data;
- Explore use of electric or natural gas vehicles to reduce fuel and emissions in the transportation sector;
- GNWT needs to develop a clear policy on the role of independent power producers.

After the Charrette, members of the Working Group analyzed the results obtained during the Charrette and worked together to prepare some suggestions to guide the GNWT in the development of the 2013 NWT Energy Plan. The suggestions included:

- Refinements to the key objectives; and,
- The continued use of collaborative stakeholder engagement activities in ongoing energy policy, planning and program development activities.

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I. Introduction

In the Northwest Territories (NWT), we are faced with many challenging issues regarding the development, generation and use of energy. The NWT has a tremendous supply of energy resources yet we are heavily dependent on imported fuels. As a result, the cost of energy in our communities is very expensive, contributing significantly to our high cost of living.

We are also witnessing the serious impact of global energy use on our environment. Average temperatures are increasing and climate-related impacts are already being felt in northern communities.

Through the NWT Energy Plan (2007) and the Energy Priorities Framework (2008), the GNWT funded a multi-year, $50 million effort to develop local and renewable energy supplies, mitigate the environmental impacts of our energy use and reduce the cost of living in NWT communities.

Given the lessons learned in recent years and the fact that the NWT is now close to completing a devolution final agreement that will give northerners control and responsibility over land, water and resource development, the GNWT is developing the 2013 Northwest Territories Energy Plan (Energy Plan) to help guide energy-related decisions and investments for the next several years.

This document is a synopsis of the 2012 Northwest Territories Energy Charrette (Charrette) which brought together about 125 NWT representatives and energy experts for three days in November to talk about the territory's energy issues. The Charrette agenda was designed to help participants engage with, educate, and inform one another about their respective energy priorities. This was not a one-way message from Government of the Northwest Territories (GNWT) to stakeholders, but rather a conversation between diverse partners, aimed at building support for future actions on energy issues in the NWT.

Specifically, the Charrette was designed to accomplish four objectives:

- Ensure a highly educational and collaborative planning process;
- Inform the "2013 Northwest Territories Energy Plan" being developed by the GNWT;
- Inform the development of the NT Energy "NWT Power System Plan" which includes a short (5 year) and a long term (20 year) vision; and
- Develop investment criteria and energy priorities for the GNWT.

The Charrette agenda is available in Appendix A.

"Making use of local and renewable energy has to be part of the long-term solution."

~ Honourable Bob McLeod, Premier of the Northwest Territories

II. Charrette Participants

A. Charrette Working Group

The planning, preparations, facilitation and reporting for the Charrette was supported by the Charrette Working Group (WG) which included representatives from communities, various GNWT departments and agencies and other stakeholders. A list of the WG members is provided in Appendix B.

The WG commenced planning in July of 2012, giving input into the development of the GNWT Discussion Paper, entitled ***"A Vision for Energy in the Northwest Territories: Developing the 2013 Northwest Territories Energy Plan"***, and helping to plan the Charrette proceedings. WG members also acted as table facilitators during the Charrette group work sessions, and conducted debrief meetings after the Charrette. Their work culminates with the authoring of this report.

B. Charrette Participant Group

Roughly 125 participants took part in the Charrette proceedings, representing 17 communities and all regions of the NWT. Participants represented communities, Aboriginal governments, civil society groups, power utilities, industry, and various GNWT departments. In addition, energy experts came from across Canada to share their knowledge of various energy resources, technologies and planning methods. A complete list of Charrette participants is available in Appendix C.

III. Charrette Preparations

In order to gather input to assist in the planning of the Charrette and ensure that the public and interested parties had opportunities to become involved, several public engagement activities were undertaken in conjunction with the Charrette:

A. Discussion Paper

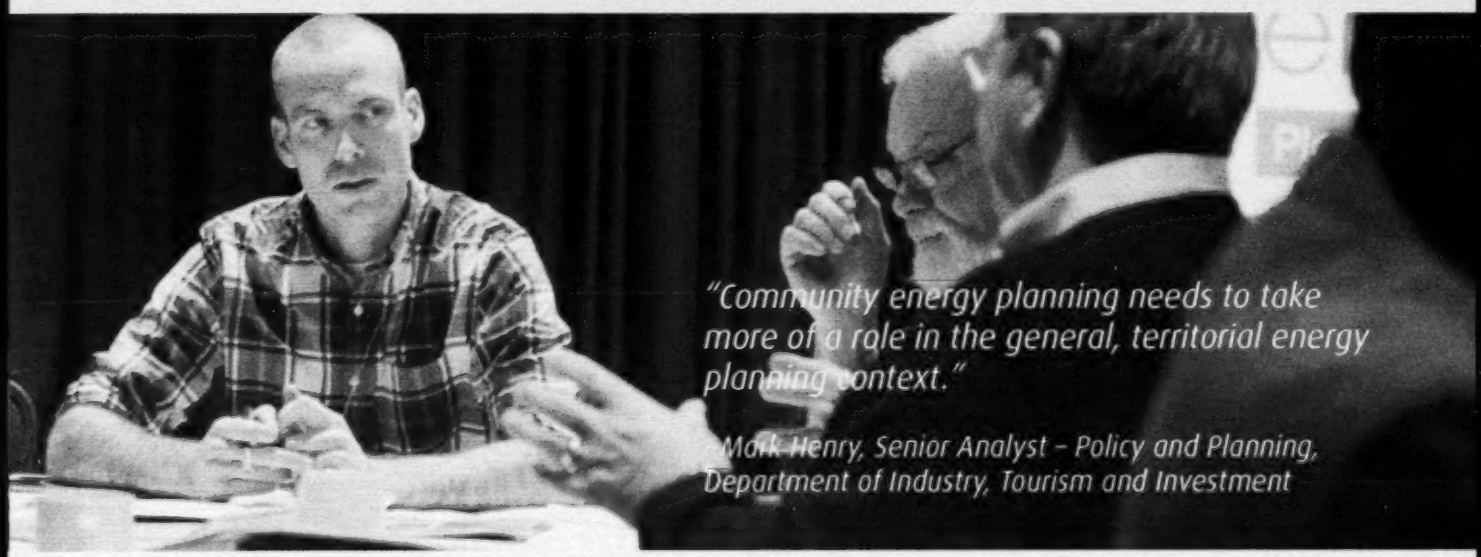
The GNWT discussion paper, entitled ***"A Vision for Energy in the Northwest Territories: Developing the 2013 Northwest Territories Energy Plan"***, was tabled by the Honourable David Ramsay, Minister of Industry, Tourism and Investment in the Legislative Assembly in October 2012. The discussion paper gave insight into the energy planning issues faced by the NWT, and posed a series of questions to northerners about energy supply, demand-side management and policy issues.

"A Vision for Energy in the Northwest Territories" can be downloaded at www.nwtenergy.ca.

B. Stakeholder Interview Process

In the lead up to the Charrette, the GNWT conducted over a dozen stakeholder interviews with a wide spectrum of individuals. Care was given to ensure that a representative range of perspectives were solicited. Interviews were conducted with stakeholders from large and small communities, representing a number of different regions, agencies, government units, utilities and business organizations. Interview results were used to inform the Charrette agenda, as well as will contribute to the development of the Energy Plan.

A summary of the comments gathered is available in Appendix D.


"Community energy planning needs to take more of a role in the general, territorial energy planning context."
Mark Henry, Senior Analyst – Policy and Planning, Department of Industry, Tourism and Investment

C. Public Survey

The GNWT also conducted an online survey open to all NWT residents entitled "Defining Values Driving the NWT's Energy Planning Process". Over 280 people participated, representing a wide cross section of the NWT in terms of regional and demographic make-up. The primary intent of the survey was to differentiate the level of importance people place on energy related policy and planning objectives. The key findings of the survey were that there are a number of competing objectives important to northerners that the Energy Plan must address. Of the key objectives, stabilizing energy costs was identified as most important followed by reducing greenhouse gas emissions and ensuring a reliable energy supply.

A summary of the survey results is available in Appendix E.

D. Participant Guidebook

Charrette participants were provided with a 'Charrette Participant Guidebook' that contained background information on the NWT energy sector, energy planning context and Fact Sheets on various energy topics and technologies.

The Guidebook and Fact Sheets are available online at www.nwtenergy.ca

"We are of course interested in maintaining the balance between the environment, economic development and resource development. We believe together we can do that."

~Honourable Michael Miltenberger, Minister of Environment and Natural Resources

IV. Charrette Activities and Outcomes

The Charrette started on Tuesday, November 20th and wrapped up on Friday, November 23rd 2012. The event was held at the Explorer Hotel in Yellowknife. Recorded excerpts from all speeches, presentations, as well as other videos and photos from the Charrette are available online at: www.nwtenergy.ca.

The basic approach for the Charrette was for participants to A) identify issues, B) from those issues create overarching objectives for the GNWT; C) with those objectives in mind, engage in a mock planning exercise (or 'energy game'), and then D) give the GNWT suggestions on policies, programming and projects it should pursue to meet the overarching objectives.

Participants were assembled into 'teams' at round tables and worked collectively to answer the various questions provided to them. All answers were recorded by table facilitators on flip chart paper, and all the pages have been photographed and are available for download at: www.nwtenergy.ca.

After day two the public were encouraged to attend an Open House where they could engage energy experts and view the issues and direction coming out of the Charrette.

The following pages present a summary of the event, including the the four group sessions that took place.

"Energy efficiency and conservation have now become an energy resource ... like solar, like wind."
– Leanne Robinson, Energy Management Specialist, Arctic Energy Alliance

A. Charrette Kick-Off Event

The Charrette was opened by Chief Fred Sangris of the Yellowknives Dene First Nation. The Honourable Premier Bob McLeod gave opening remarks on behalf of the GNWT. The Honourable Michael Miltenberger, Minister of Environment and Natural Resources, then delivered an address unveiling the 2012 Northwest Territories Biomass Strategy as well as the 2012 Northwest Territories Solar Energy Strategy. Minister Miltenberger called for strong action to be taken in the deployment of renewable energy technologies in the NWT.

Peter Tertzakian, an energy author, historian and financial analyst, delivered a keynote presentation and interview with CBC radio that provided an international and Canadian context, providing a background for the NWT energy planning work that was completed during the Charrette.

B. Day 1: Issues and Objectives

On the morning of Day 1, Charrette participants heard context-setting presentations outlining a) the development of the national electricity sector, b) political devolution in the NWT, c) how community energy planning can connect to territorial energy planning, d) how Aboriginal Governments view energy planning and e) how complex decision-making processes can be made more transparent.

Identification of Energy Issues (Group Session #1)

The first group breakout session focused on identifying key energy planning issues. Participants were asked to consider the constraints associated with the identified issues and, if possible, to reframe the issue or problem into an opportunity.

The results from each group were reviewed and summarized in ten categories. The issues identified are as follows (in no specific order):

Geographical & Climate

- Poor economies of scale: many communities with few people and small markets
- Remoteness, isolated communities, permafrost and other issues make project costs high
- Lack of all-season roads for many communities
- Lack of transmission lines
- Supply chains difficult & transportation more expensive

Financing & Ownership

- Much infrastructure not community or Aboriginally owned
- GNWT debt limits are a barrier to financing projects
- Lack of community-based financing mechanisms
- High O&M costs, including transportation & requirement for backup systems
- Lack of private sector incentive & investment
- Many new energy projects and alternative options have high up-front costs and long returns on investment
- Full cost accounting not being used for projects; employment and social factors, the cost of fuel spills and fuel storage, reinvestment of money paid to local employees
- Lack of flexibility regarding financing options: more options need to be considered: P3, Aboriginal partnerships
- Lack of coordination amongst major government funding programs
- Numerous levels of government and lack of coordination

Technology

- Requires skilled labour
- Economies of scale lacking
- Human resource capacity & skills lacking
- Limited understanding of new tech: maintenance, operation, costs
- Lack of local knowledge about ways to be more efficient or availability of efficient technologies
- New technology must be flexible and need for redundancy
- Lack of understanding & knowledge

Cost

- High costs
- Energy prices are not equitable across the NWT
- Lack of understanding of relationship between rate structures, subsidies, and incentives for energy efficiency
- People leaving small communities due to cost of living
- Electricity prices go up if we use less

Energy Security

- Lack of price stability
- Imported fossil fuels: rising prices, unpredictable & unstable
- Lack of energy self-sufficiency

Policy

- Lack of incentives for energy efficiency (subsidies, etc)
- Renters/owners & who benefits from building improvements
- Lack of mechanism for independent power production
- Lack of building energy standards
- Monopoly of power corporation
- Lack of transparency regarding costs, revenues, infrastructure costs

Planning

- Advance planning required i.e. power to mines
- Lack of understanding regarding intent of energy plan
- Slow decision making processes
- Decisions maybe not evidence-based
- Obtaining support for new energy projects
- What is the priority... local or export or industry (mines)
- Large variety of opinions, views, priorities
- Not all stakeholders always consulted; barriers for community involvement
- Lack of energy planning initiatives in some communities
- Poor relationships between GNWT & Aboriginal Governments & communities
- Unsettled land claims affecting resource development
- Lack of analysis on results of previous GNWT projects & programs
- Lack of focus on transportation
- Cost of planning
- Lack of clarity & consistency of policy and responsibility of various government departments
- Lack of data on energy use: buildings
- Lack of willingness to accept risk

Environment

- GHG emissions: climate change affecting infrastructure & lifestyles
- Fuel spills
- Transmission lines and highways impact on the land
- Impact of resource extraction on the land

Reliability

- Particularly in communities (an increasing issue)
- Hydro affected by rainfall
- Risks in supply chain getting fuel to communities
- Even local fossil fuel resources have supply risk (i.e. Inuvik, Norman Wells)
- Systems only reliable with consistent O&M: often a lack of attention to maintenance of buildings & systems

Economic Development & Local Jobs

- High energy costs hinder development of industry, mines
- Importing fuels means export of dollars; no money reinvested in community
- Not enough northern content
- Keeping benefits in the north

Setting Objectives (Group Session #2)

In the afternoon of Day 1, participants received additional information about how energy planning processes in the NWT (and other Canadian jurisdictions) help to organize government investment and change in energy systems.

The participants then returned to their breakout groups to consider the key objectives that should be reflected in a NWT Energy Plan. To support these discussions, the groups were provided with a summary of the issues identified from Session #1 (as listed above).

The results from each group were reviewed and summarized in the following list of macro objectives:

Ensure reliable energy and electricity supplies

Improve the reliability and long-term security of energy and electricity supplies.

Improve affordability

Control, stabilize, and ultimately reduce costs of energy while maintaining fair and equitable prices across the NWT. Enhance efficiency of energy use and thermal-electricity generation to reduce the cost of providing energy services. Explore new electricity markets as a tool to increase economies of scale and reduce costs. Improving affordability will reduce the requirement for energy subsidies and allow limited government funds to be dedicated to other priorities such as health and education.

Reduce environmental impacts

Reduce greenhouse gas emissions and other environmental impacts on air, land, and water, primarily through the development and use of renewable energy sources and by increasing energy efficiency. Better track energy supply and demand to measure progress in meeting the goals of the NWT Greenhouse Gas Strategy.

Enhance flexibility and adaptability

Encourage the diversification of energy supplies and explore the use of new financing mechanisms. Invest in knowledge and learning through demonstration and implementation of new technologies and solutions.

Use energy to develop the NWT economy and create jobs

Encourage economic development, investment, training, and job creation in the NWT through the development of local energy resources for local community use, industrial use, and export. Use triple bottom line accounting including social and local economic benefits, environmental impacts and lifecycle costs to accurately assess the benefits of new energy projects. Find innovative sources of project funding to develop new energy infrastructure.

Elevate the priority of community and Aboriginal initiatives

Elevate the priority of community objectives, planning, control, and ownership and work towards increased community self-reliance. Incorporate community objectives such as maintaining cultural values, reducing noise pollution, and increasing local economic development. Continue to partner with Aboriginal organizations to encourage local and regional ownership and control.

"We want precision so that when we are talking about sustainability, we're talking about the same thing, and that requires listening, negotiation, and time."

~ Joe Arvai, Svare Chair in Applied Decision Research at the Institute for Sustainable Energy, Environment and Economy at the University of Calgary

C. Day 2: NWT Energy Game

During the morning, Charrette participants heard presentations outlining the potential for the future development of energy systems in the NWT as viewed by energy utilities and industry. These presentations included: a) the role of hydro and diesel generation; b) the role of private investment and partnerships; c) the role mining operations can play; and d) the role NT Energy's Power System Plan will play.

Additionally, presentations were delivered on various potential resource options that can play a role in the development of communities. Specifically, a) natural gas, b) biomass, c) solar power, d) geothermal power, e) wind energy, and f) energy efficiency were all discussed. Again, these presentations, as well as audio excerpts, are available online at: www.nwtenergy.ca.

Energy Game (Group Session #3)

In the afternoon, the participants returned to their breakout groups to take part in an 'energy game'.

The purpose of the energy game was to get the groups to use the Objectives (as developed in Session #2) and the various energy supply and efficiency options available in the NWT to develop high-level energy plans for two fictitious but typical NWT communities. The game use fact cards that highlighted different energy options for the group to consider. Through this type of discussion, the participants were required to consider how different energy resource options or actions can help meet key objectives and to understand the types of trade-offs that exist between the different options.

Specifically, the groups were asked to develop short-term plans (next five years) and long-term plans (twenty years). At the conclusion of the energy game, the various groups presented their action plans to the entire Charrette Participant Group. The table below demonstrates how the various groups envisioned energy development unfolding in the two mock communities.

Community 1 – Northern NWT

Participants were asked to develop an action plan for a typical Arctic community, with 1,000 residents, 300 residential units, and 30 non residential buildings. The community relies on diesel-electric generation, has a high unemployment rate, and is close to discovered natural gas reserves.

Short-term		Long-term	
Energy Option	***# of Groups in Favour***	***Energy Option***	***# of Groups in Favour***
Energy Efficiency	7	Natural Gas (general)	5
Biomass	6	Energy Efficiency	4
Interim Diesel	3	Natural Gas (pipeline)	3
Residual Heat	2	Power Transmission	3
Solar PV	1	Wind Power	3
Solar Water Heating	1	Liquefied Natural Gas	2
Biomass Cogeneration	1	Biomass	2
Small Hydro	1	Solar	1
Wind Generation	1	Biomass Cogeneration	1
Electric Thermal Storage	1		

Community 2 – Great Slave Lake Area

Participants were asked to develop an action plan for a typical community in the Great Slave Lake area. The community has a population of 500 residents, 120 residential units, 20 non-residential buildings, and is supplied by diesel-electric generation. The community has a high unemployment rate, and a promising mine site is nearby.

Short-term		Long-term	
Energy Option	***# of Groups in Favour***	***Energy Option***	***# of Groups in Favour***
Energy Efficiency	5	Hydro Transmission	8
Biomass	4	Energy Efficiency	5
Interim Diesel	3	Biomass	5
Transmission to Hydro	3	Hydro Development	3
Hydro Development	1	Leverage Industry	2
Solar Water Heating	1	Geothermal	1
Solar PV	1	Wind	1
		Combined Heat and Power	1
		Biomass Cogeneration	1
		Solar PV	1

D. Day 3: 2013 Energy Plan

On Day 3, the participants focused on the process and elements involved in developing the 2013 NWT Energy Plan. The morning started with a brief presentation that provided an initial overview of the various issues and discussions that had occurred during Day 1 and 2 of the Charrette.

Actions, Policies and Implementation (Group Session #4)

The intent of the last group breakout session was to allow the participants to provide comments and advice to the GNWT on various aspects related to the drafting and implementation of the Energy Plan.

To help provide some structure for this discussion, the participants were asked to respond to the following six questions:

a) How would you prioritize the proposed objectives? And, did we miss any?

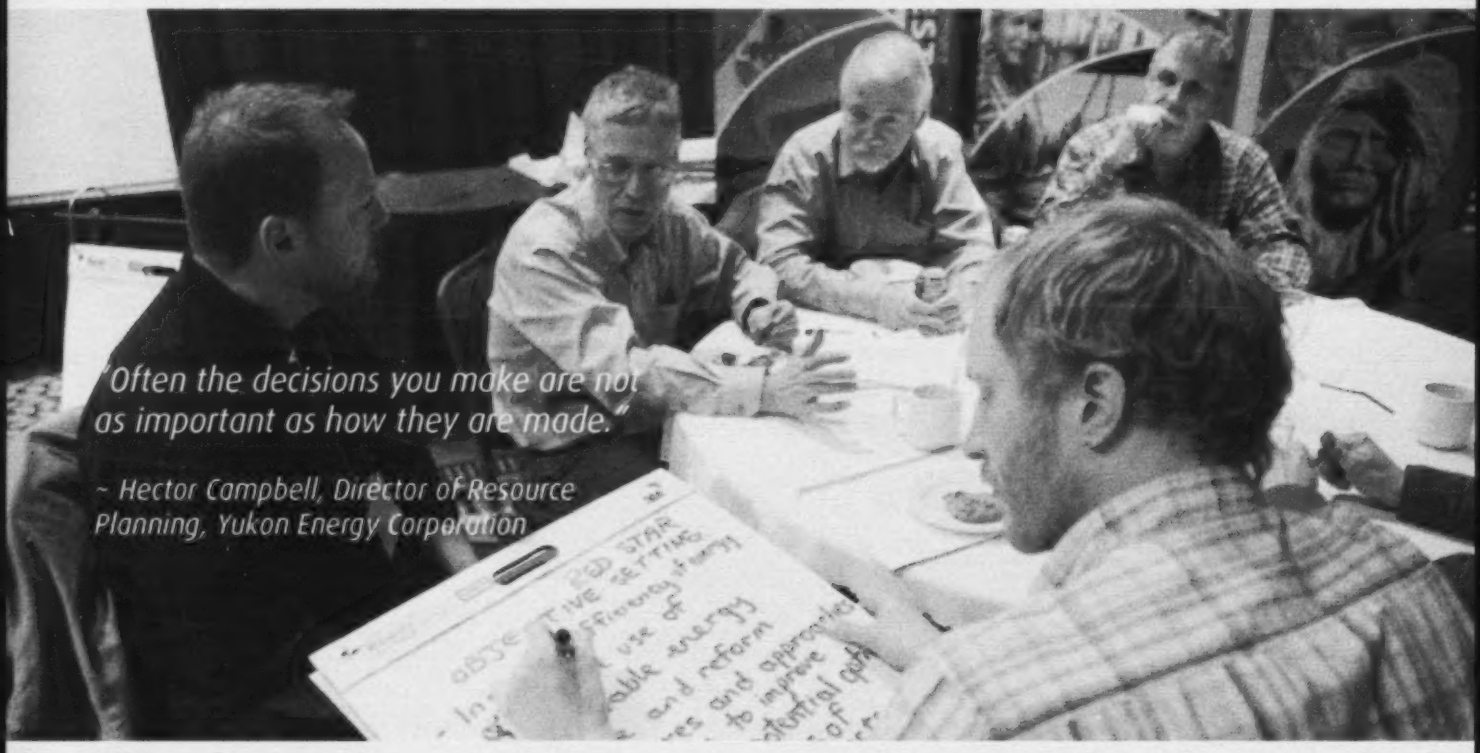
b) What additional key issues need to be addressed?

c) What should we be measuring?

d) Are there initiatives we can undertake with respect to transportation?

e) What is the potential role of independent power producers? Under what conditions should they be allowed/encouraged?

f) Are there other policy, legislation, and regulation gaps? What other information is needed?


"Often the decisions you make are not as important as how they are made."
~ Hector Campbell, Director of Resource Planning, Yukon Energy Corporation

Due to time limitations, many of the groups did not respond to all of the questions. Below is a summary of the group results for Session #4:

How would you prioritize the proposed objectives? And, did we miss any?

Considering the time actually allotted to the matter of objectives, ranking them was a difficult exercise for participants. Some groups preferred not to rank them, and all groups seemed to recognize that all the objectives are mutually interdependent.

This being said, the 'affordability' and 'reliability' objectives were the most commonly chosen top choices for the groups that completed the ranking exercise. There was no general consensus on the ranking of other objectives.

What additional key issues need to be addressed?

In summary, most groups found the issues identified during the Day 1 session to be a comprehensive coverage of the issues. However, some groups did discuss that the GWNT should be concerned with aspects of human health when planning energy initiatives. For instance, a faulty furnace that emits carbon monoxide, or particulate matter from a diesel power generation plant, may effect human health standards. What can the GNWT do to create healthy energy options for residents?

Additionally, some participants found that the issue of lack of clear direction, lines of authority, and accountability in decision-making in energy was not adequately covered off by the issues and objectives derived from the group work on Day 1. How can the GNWT create more clarity around energy decision-making?

What should we be measuring?

There was overwhelming consensus that the GNWT needs to launch a concerted effort to better track fuel and electricity consumption data. This effort should include tracking energy consumption at the territorial, community and household level. Charrette participants were also concerned that the GNWT is not putting enough effort into accurately tracking GHG emissions. A more comprehensive system that includes breakdowns by communities is needed.

A sub-theme which emerged at various points during the Charrette was the need for the GNWT to be able to quantify the energy security risks faced by communities. System reliability, fuel supply chain sustainability, and long-term costs of energy – as well as other factors – need to be accurately pinpointed on a scale which would help energy planners avoid crisis scenarios and reduce risks. The end result would help forecast energy security issues well in advance.

Another sub-theme emerging throughout the Charrette was for the GNWT to more accurately account for its energy expenditures, in a clear quantitative and qualitative fashion.

More minor themes that different groups thought were worthy of accurate measurement included:

- GNWT should set targets for affordability, setting benchmarks for energy rates at 'X times' the Canadian average, for example;
- Percentage of local ownership of power generation equipment; and
- Energy literacy through a number of events and public outreach, etcetera.

Are there initiatives we can undertake with respect to transportation?

Several groups wanted to see GNWT action on the deployment of electric vehicles demonstration projects within the hydro zone. Interest was also expressed in demonstration projects for natural gas vehicles. Some emphasis was placed on the socialization of better energy practices, such as reducing idling of vehicles, and encouraging/regulation of right-sizing of small engines and vehicles.

Of course, reducing overall transportation use is paramount. Running hydro lines to large mines, thus removing the need for trucked fuel supply, or GNWT personnel using improved teleconferencing systems in place of traveling to meetings, would reduce energy use in this sector.

More minor themes that different groups thought were worthy of consideration included:

- A more efficient/green GNWT vehicle fleet brought about through a stronger procurement policy;
- Encourage efficient modes of transport across the board through policies and incentives (this extends to use of barges, encouraging a modern aviation fleet);
- Registration costs for vehicles dependent on size or fuel consumption; and
- Investigate local gas to liquids development capacity, in order to source fuel locally.

The biggest challenge in the room is to talk about how you are going to communicate to each other to achieve some sort of consensus to work together."

–Peter Tertzakian, Keynote Speaker and Managing Director, ARC Financial

What is the potential role of independent power producers? Under what conditions should they be allowed/encouraged?

There is a strong recognition that a firm public policy on the development of independent power producers (IPPs) in the NWT is needed. At a high level, the participant group felt that local and Aboriginal ownership were key priorities for future expansion. Generally, it was felt that IPP development should be focused on projects that will diminish fossil fuel consumption outside of hydro zones.

More minor themes from the group for GNWT consideration include:

- Standby/demand charges need to be the same for commercial entities and renewable energy producers;
- Southern grid intertie is important to the large scale development of renewables in the NWT;
- Expansion of IPPs could help GNWT reduce risk and meet renewable energy targets; and
- IPPs should only be considered when they transfer jobs and skills to locals.

Are there other policy, legislation, and regulation gaps? What other information is needed?

There was widespread support to introduce 'Structured Decision-Making' or a similar, transparent decision-making process in the planning and development of energy programs, projects and policies within the GNWT. There was significant support for legislation on energy efficiency programming and regulation, such as developing a framework for 'local improvement charges' at the municipal level, or through mandating energy efficient products and appliances (such as Energy Star).

Additional minor themes for GNWT consideration include:

- A clearer rate-setting policy needs to differentiate between the true cost of energy and subsidized rates;
- The GNWT needs a clear policy on which data is going to be collected, why it is to be collected, and how it will be disseminated;
- The GNWT could regulate the amount/percentage of green power that industry must use;
- The GNWT could mandate minimum energy efficiency standards for new buildings;
- A comprehensive IPP policy is needed;
- Any future Energy Minister should be legally mandated to carry out an energy planning process on a regular basis.

V. Working Group Input

To assist the GNWT in digesting the Charrette results and provide a "bridge" for the task of preparing the 2013 NWT Energy Plan, the Working Group offers the following observations for the GNWT's consideration.

A. Analysis of Energy Objectives

The setting of objectives is one of the most important aspects to consider in the drafting of the 2013 NWT Energy Plan. Objectives describe the outcomes or results that are intended to be achieved and serve as a basis for measuring performance over time.

As such, the Working Group has further refined this list – while maintaining the original intent of the participants. Effort was made to distinguish between actions to achieve an objective and true 'ends-based' objectives. For example, diversifying energy supply is an action that could be used to achieve the objective of improving reliability.

"We have to think about alternatives to pipelines."

~ David Mahon, Manager, Hydro Development, NT Energy, speaking about the benefits of liquefied natural gas in the NWT.

As such, the Working Group would like to provide the following list of objectives for the consideration of the GNWT:

Overall Strategic Objective

- Improve long term community sustainability (economy, environment, social)

Specific Energy Objectives

- Improve energy and electricity reliability
  - Maximize energy and electricity supply reliability
  - Minimize outages on the electrical system
- Improve affordability
  - Reduce the true cost of energy and electricity
  - Stabilize the cost of energy and electricity
- Reduce environmental impacts
  - Reduce greenhouse gas emissions from energy and electricity generation
  - Reduce particulate air emissions from energy and electricity generation
  - Reduce noise pollution from electricity generation
- Increase economic development
  - Increase job creation from resource sector
  - Increase revenue potential from local energy resources
  - Increase community and Aboriginal economic development
  - Increase Aboriginal investment opportunities
  - Increase private investment opportunities
- Increase community and Aboriginal involvement in decision making
  - Increase the use of cultural values in decision making processes
  - Increase the use of Community Energy Planning processes

B. Recommendations for Further Public Engagement

One of the objectives that the 2012 Energy Charrette was designed to accomplish was to "ensure a highly educational and collaborative planning process". Based on the general reaction of the participants during and after the Charrette, the Working Group believes that this objective has clearly been met. Numerous participants stated that they were very pleased with the process and indicated their interest in continuing to participate in similar public engagement activities pertaining to energy planning in the future.

Another point worth noting is the fact that the Charrette participants generally seemed to be very engaged throughout the 3-day event. Given that the Charrette agenda was developed based on a structured decision making framework, the success of the event suggests that this type of approach works well when conducting public engagement activities with a wide range of interested stakeholders.

Looking forward, the Working Group believes the GNWT should continue to use a structured decision making approach and collaborative public engagement activities, where appropriate, in its future energy planning and implementation efforts.

VI. Appendices

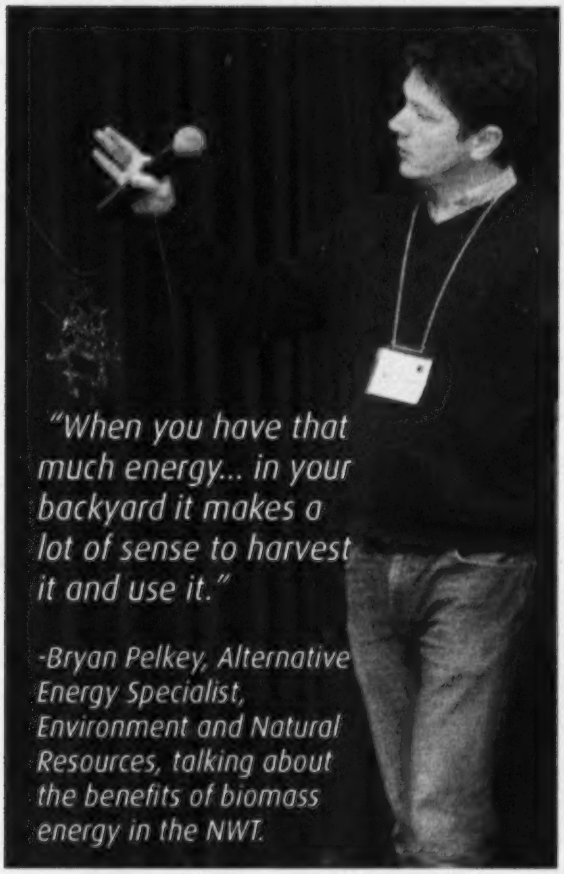
A. Charrette Agenda

B. Working Group List

C. Charrette Participant List

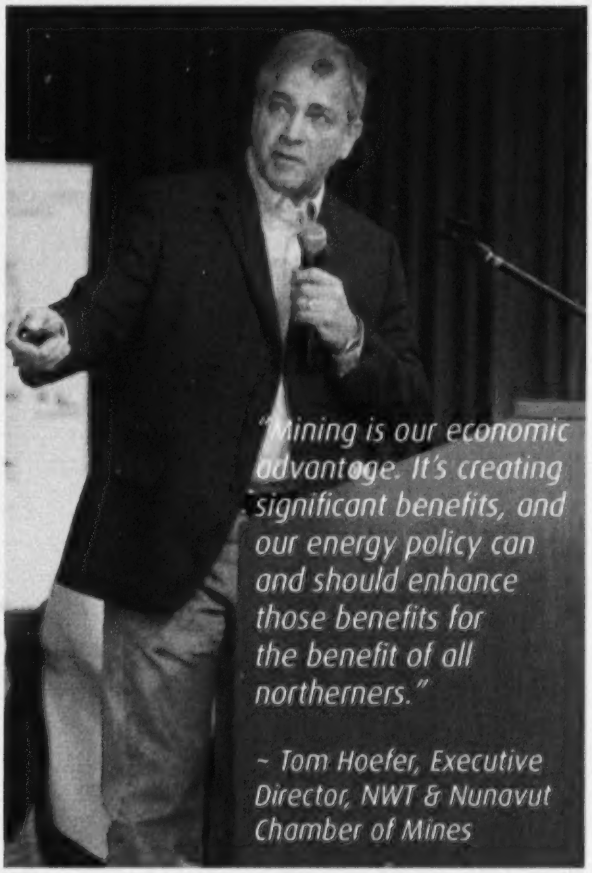
D. Stakeholder Interview Remarks

E. Feedback from Public Survey Process



"When you have that much energy... in your backyard it makes a lot of sense to harvest it and use it."

-Bryan Pelkey, Alternative Energy Specialist, Environment and Natural Resources, talking about the benefits of biomass energy in the NWT.



"Mining is our economic advantage. It's creating significant benefits, and our energy policy can and should enhance those benefits for the benefit of all northerners."

~ Tom Hoefer, Executive Director, NWT & Nunavut Chamber of Mines

Appendix A – Charrette Agenda

Introduction

The Government of the Northwest Territories (GNWT) released an Energy Plan in 2007. Since that time, a great deal has changed. Oil prices have continued to rise, the impacts of climate change in our northern environment have continued to grow, and the knowledge and technology of an array of local and renewable energy solutions has improved. As such, the GNWT has recognized that it is time to renew the 2007 Energy Plan.

The approach to the 2013 Energy Plan is centred on "collaborative policy development", and a key to achieving this is the 2012 Northwest Territories Energy Charrette. What is a charrette? It is a dynamic planning process where communities, governments (Aboriginal, territorial, federal), non-government organizations, industry, and energy experts come together to develop an energy strategy and plan for the future. This will include a discussion on the key energy issues facing the NWT as well as participating in a planning process to develop consensus on how we address our energy challenges and take advantage of the opportunities in front of us.

We have been working with a Charrette Working Group with members from both within and outside government who will also be assisting in the delivery of the Charrette. The objectives of the Charrette are:

- To ensure a highly educational and collaborative planning process;
- Inform the development of the 2013 Energy Plan;
- Inform the development of the NWT Power System Plan which includes a short and long term (20 year) vision; and
- Develop investment criteria and energy priorities for the GNWT.

NWT residents, communities and Aboriginal governments have been encouraged to provide input. This Charrette will provide participants with an opportunity to discuss these questions at length and in a forum that includes a wide variety of backgrounds, views and expertise. The results of this discussion will be published and will provide the GNWT with some valuable input to inform the development of the 2013 Northwest Territories Energy Plan.

We are pleased to act as your Charrette Managers. We are excited about the opportunity to engage in the discussion. Thank you for participating in this exciting process.

Lesley Cabott

R. Marshall

Rob Marshall

November 20th
Public Kick-Off Event

4:00 - 5:00pm **Guided Tour - Legislative Assembly Wood Pellet Boiler System**

Matthew Kennelly, Energy Management Specialist with Public Works and Services will give a brief guided tour of the wood pellet boiler system that heats our territory's Legislative Assembly building. Interested parties should meet Matthew at the front doors of the Legislative Assembly at 4:00PM. This is a five-minute walk from the Explorer Hotel.

7:00pm **Introductions from Charrette facilitators Lesley Cabott and Rob Marshall**

Lesley and Rob will provide a brief introduction to the event and provide an overview of the Charrette and 2013 Energy Plan process.

7:10pm **Welcome and Blessing from Yellowknife's Dene First Nation**

7:15pm **Government Welcome: Premier Bob McLeod**

7:25pm **A Vision for Energy - Local and Renewable Supply: Minister Michael Miltenberger**

Minister Miltenberger will speak to the great deal of work undertaken over the past four years on local and renewable forms of energy and provide some perspectives on what needs to be captured in developing a vision for our energy future. Hydro, biomass, solar, wind, and geothermal all have a role to play in our diverse territory. The Minister will also introduce new Solar and Biomass Strategies that set the broad direction - and some ambitious targets - in the area of solar and biomass.

7:40pm **Key Note Speaker: Peter Tertzakian**

Peter Tertzakian is Chief Energy Economist and Managing Director at ARC Financial Corporation. Peter has over 25 years of experience in the energy industry and is a highly regarded energy historian, analyst and futurist. Peter's two books, A Thousand Barrels a Second and The End of Energy Obesity provide insight into the dynamic world of energy through a thoughtful and highly readable examination of economic, environmental and geopolitical pressures. His books have been translated into several languages including, Chinese, Japanese and Arabic.

Peter will provide Charrette participants with a global energy perspective, making a link to the energy challenges and opportunities facing Canada and the NWT today. The public has been invited to attend this portion of the Charrette and are encouraged to participate in a discussion after Peter's address on the future of energy and what that may mean for the NWT. Ms. Allison Devereaux (CBC North-Yellowknife) will facilitate this portion of the evening. Ms. Devereaux has been reporting in the north for the past four years, covered the Arctic oil and gas sector for two years, and is the current host of Trail's End on CBC North.

9:00pm **Adjourn**

Day 1 - November 21st
Setting The Context, Creating A Vision

8:15 - 8:45am **Networking**

8:45 - 9:00am **Welcome and Introductory Remarks: Lesley Cabott and Rob Marshall**

Lesley and Rob will provide a review of the Charrette process, introduce the Charrette Team and provide an introduction to the day ahead.

9:00 - 9:35am **The National Context: Electricity**

Jim Burpee, President, Canadian Electricity Association

People are used to flicking a switch and seeing the lights come on. As northerners can attest, without the right infrastructure and supply, this does not always happen. Building upon the global discussion held the previous evening, Mr. Burpee will highlight some of the current energy supply issues facing Canada today, with a focus on our electricity sector. Jim will then link some of these issues to the NWT context and provide some perspectives on other 'isolated' electricity systems in Canada and the world.

9:40 - 10:10am **Territorial Context: Devolution, Communities and Aboriginal Governments**

The NWT is undergoing a period of change and political evolution. What will devolution mean to the NWT in the context of energy? What is the role of community governments and community energy planning? What is the role of Aboriginal governments? The panel will provide a 10 minute overview on each of these issues.

- Devolution: Shaleen Woodward, Executive Director, Devolution, GNWT
- Communities: Mark Henry, Senior Analyst, Energy Policy & Planning, GNWT, Community Energy Planning
- Aboriginal Governments: Danny Gaudet, Self-Government Negotiator, Deline

10:10 - 10:30am **Break**

10:30 - 11:00am **Decision Support for Energy Strategy Development**

Joe Arvai, PhD, University of Calgary, Institute for Sustainable Energy, Environment & Economy

Our energy systems, our economy and our environment are tightly linked - and the stakes are higher than they have ever been. How do we balance trade-offs to meet public policy objectives and ensure a collaborative, transparent process? This brief discussion will include some insights on 'structured decision making' that can help balance trade-offs and provide an overview of some energy planning initiatives that have successfully utilized this approach.

11:00 - Noon **Group Work: Issue Identification**

During this first breakout session the charrette participants, (community, industry, Aboriginal and government representatives) will identify energy planning issues. The feedback from the discussion paper, pre-charrette survey and stakeholder interviews will all form part of the issue identification exercise. The participants will be asked to consider the constraints associated with the issue or problem as well reframing the issue into an opportunity.

Noon - 1:00pm **Lunch on site**

1:15 - 2:00pm **Energy Conversation: Developing an Energy Plan**

Hector Campbell, Director of Resource Planning, Yukon Energy Corporation: Planning In Public - Yukon's Twenty Year Resource Planning Process

Dave Nightingale, GNWT, Director of Industry, Tourism and Investment Energy Planning Division: Elements of an Energy Plan

This panel will provide an overview of energy planning processes. Yukon Energy undertook a unique energy charrette process to educate participants, develop energy decision making principles and better understand what energy resources Yukoners want to meet their future energy needs. Yukon Energy was awarded a Canadian Electricity Association Sustainability Award for this planning process. Several Canadian jurisdictions recently released new energy plans. What was the experience of others in developing their energy plans? What are the elements of an energy plan?

2:00 - 4:00pm **Group Deliberation: Values, Vision and Principles (Objective setting)**

Lesley Cabott and Rob Marshall

With the context established, Lesley and Rob will lead off a discussion on the objectives/values that should be reflected in a NWT Energy Plan. This will start with a review of the vision and principles reflected in the 2007 Energy Plan followed by breakout groups to answer the following questions:

- What values do people hold when it comes to energy?
- What vision do you have for the future (short and long term)?

Identifying all the objectives will create the decision making criteria which will lead the groups to balanced decisions. The groups need to identify the objectives that matter to the GNWT and northerners, e.g. (affordable, environmentally responsible, local, economic development opportunities, and reliability). Objectives/values are the foundation for creative solutions.

Break while in groups

4:00 to 4:45pm **Day 1 Result: Charrette Managers**

- Summary of results (groups); and
- Q&A period.

Day 2 - November 22nd
Energy Supply and Demand

8:15 - 8:45am **Networking**

8:45 - 9:00am **Welcome and Review of Day 2 Activities (Charrette Managers)**

Lesley Cabott and Rob Marshall

9:00 -10:15am **Developing the NWT Power System Plan**

Andrew Stewart, Manager of Project Planning, NT Energy:
The Role of Hydro and Diesel Generation in the Northwest Territories

Dwight Redden, General Manager, Northland Utilities: NWT Power System Development

Tom Hoefer, Northwest Territories and Nunavut Chamber of Mines: The Private Sector's Viewpoint

Emanuel DaRosa, President, NTPC: The Power System Plan concept - Planning Challenges, Constraints & Opportunities.

Conventional sources of energy supply in the north have been predominantly oil, hydro, and to a lesser extent, natural gas. Existing hydro development in the North and South Slave regions of the NWT is the result of government investment and leveraging the power requirements of industry. Why do the other regions in the NWT rely on oil? What is the outlook for hydro development? Andrew Stewart and Emanuel DaRosa will provide an overview of the NTPC Power System Plan under development and a review of current growth in NWT community energy demand. This will be followed by a discussion on potential growth from resource development and how that growth might be leveraged to benefit NWT.

10:15 - 10:30am **Break**

10:30 - Noon **Energy Resource Options**

As the price of oil continues to rise, and the transportation and use of imported oil continues to have adverse impacts on our environment, many people are looking to more local and renewable forms of energy. Energy efficiency and conservation is widely accepted as the most cost effective investment to displace oil. While most emerging renewable energy systems come at an added cost, many believe that the north must become familiar with these technologies and invest to some degree in all of them. Consider it a hedge against the rising cost of oil. How do we prioritize our investments between demand side and supply side options? What are the latest developments in alternatives to oil? What are the economics? What communities could be ideal candidates for various forms of renewable energy?

- Natural Gas: David Mahon, Manager of Hydro Development, NT Energy
- Biomass: Bryan Pelkey, Alternative Energy Specialist, GNWT
- Solar: Myra Berrub, Manager, Energy Services, NTPC
- Geothermal: Wade Carpenter, Alternative Energy Specialist, GNWT
- Wind: JP Pinard, PhD, President, JP Pinard Consulting
- Energy Efficiency/Conservation: Leanne Robinson, Energy Management Specialist, Arctic Energy Alliance)

Noon - 1:00pm Lunch

1:15 - 4:15pm Group Work: NWT Energy Planning Exercise

Charrette participants will be asked to select energy resource options that respond to energy scenarios for 5 year and 20 year planning horizons. The resource background information will be used to develop energy cards; the groups will use maps, planning matrices and the principles and vision developed in Day 1 and will match resource options against the scenarios to create NWT's energy future.

Planning scenarios are being developed and may include e.g.: large mining projects, Mackenzie Valley pipeline, or direction to get 5 communities off diesel by 2015.

The results of this planning exercise will help prioritize the objectives/values; educate the participants about constraints and tradeoffs and inform the investment criteria and implementation planning on Day 3.

4:15 - 5:00pm Report back on results of the exercise. What are the short and longer term planning priorities?

7:00 - 8:30pm Public Event

During this session, the public will be able to review and learn about the work of the Charrette participants, as well as provide their input for consideration as part of the deliberations. A short overview of the process and work completed will be given by Charrette Managers and various energy experts. Then, the public will take part in an interactive feedback session.

Day 3 - November 23rd
2013 Northwest Territories Energy Plan

9:00 - 9:15am **Welcome and Review of Day 3 activities (Charrette Managers)**
Lesley Cabott and Rob Marshall

9:15 - 9:30am **The Opportunity: The 2013 Energy Plan**
Dave Nightingale, Director of Energy Planning, Industry, Tourism and Investment, GNWT

Dave will briefly review the structure of the 2007 Energy Plan and provide a high level framework for the 2013 Energy Plan to lead the group discussion.

9:30 - 11:30am **Group Deliberation: Where should the GNWT invest?**

- Using the results from the past two days and the energy experts at the Charrette, the groups will be tasked with identifying key elements to be included/considered in the Energy Plan framework.
- Prioritize the energy investment criteria.
- Groups will also be tasked with developing 3 key indicators to measure the results of the Plan.

11:30 - 12:30pm **Report Back - Summarize - Next Steps - Thank you - Celebrate**

Speaker Bios

Andrew Stewart

Andrew Stewart grew up in the north and joined the NT Hydro team in 2008 and grew up in the north. Andrew has over 10 years of experience working at various levels of government including working in energy policy with the GNWT and the Clerk's Office of the Legislative Assembly. Andrew earned a Masters in Business Administration (2005) from the University of Victoria, a Bachelor of Arts Degree in Geography (1999) from the University of Calgary and has spent the last 5 years managing hydro and energy projects from conceptual studies, through to design feasibility and regulatory approvals. Andrew presently oversees three senior energy staff that collectively work to evaluate and implement local and or renewable energy projects to help stabilize and reduce the cost of utility scale energy for communities, Aboriginal governments, and industry in the NWT. His diverse background allows him to apply a well-rounded approach to the analysis of hydro and renewable energy projects to provide information that is relevant to decision makers in communities, government and the private sector.

Danny Gaudet

Danny Gaudet is the Chair of Northwright Air and owns Deline Contracting. He works as Chief Negotiator for Deline Self-Government. Danny has worked with his community to develop a strong vision for Dene governance and economic development. He has been called upon to act as negotiator in a number of other Deline First Nation interventions, including working for the Deline Uranium Team and the Great Bear Lake Management process. Danny has been working on energy solutions for Deline since 1995.

Dave Nightingale

Dave Nightingale is Director of Energy Planning with the GNWT Department of Industry, Tourism and Investment. Dave has lived in the NWT for most of his life. After graduating from Samuel Hearne Secondary School in Inuvik, Dave attained a Bachelor of Business Administration (Major in Economics) and later, a Certified Management Accountant (CMA) designation. Dave has been in a wide range of positions over his career with the GNWT, but the last 7 years have been focused on energy policy. Dave was the primary author of the 2007 NWT Energy Plan.

David Mahon

David is a professional engineer that joined NT Energy in June 2010. His time with the energy corporation has been devoted to understanding the technical and economic prospects of alternative energy projects, including examining projects such as the Lutselk'e mini-hydro, transmission line expansion in the North Slave and more recently starting feasibility work on the potential for LNG solutions in the NWT. Previously David worked with GNWT Public Works and Services, where he was part of the technical writing team for the GNWT's "Good Building Practices for Northern Facilities", considered one of the best resources for robust, energy efficient northern construction.

Dwight Redden

Dwight Redden is the General Manager for Northland Utilities Yellowknife, Northland Utilities NWT and the Yukon Electrical Company Limited. Mr. Redden graduated with a degree in Civil Engineering from the University of Alberta in 1983. Mr. Redden's 25 years with the ATCO Group of Companies started in the transmission and sub-station design and construction groups. He then moved into design, construction and maintenance of coal-fired and natural gas-fired power generating stations including 10 years of business development for ATCO's independent power projects. Mr. Redden now has responsibility for their three North of 60 regulated utility companies.

Emanuel DaRosa

Emanuel DaRosa has held many leadership positions during his 20 years in the power sector. He joined NTPC in July 2011 and was appointed president and CEO of the corporation in January, 2012. Emanuel has held various positions with such organizations as Ontario Hydro, Hydro One, Brookfield Power and Thunder Bay Hydro prior to arriving at NTPC. Emanuel's leadership and drive for improvement have led to success throughout his career. He holds a bachelor's degree in electrical engineering from Lakehead University and an MBA in business administration and marketing from Tulane University. Emanuel presently sits on the Electrical Safety Authority's Appeal Review Panel and the Utility Standards Forum's Asset Management Committee. In the past, he has been an active member of the Electric Distributors Association and a member of the Regulatory Streamlining Task Force, the IESO's Generation Visibility working group, as well as on the Transmission Planning Task Force for Ontario.

Hector Campbell

Hector's career in the electricity sector spans 36 years, working as an engineering consultant and in direct employment with private and publicly owned electrical utilities in Alberta and Yukon. Over his two plus decades in Yukon, Hector has managed utility operations, engineering, business development and planning/ permitting portfolios. Over the last 16 years a greater focus in his work has been on public, stakeholder, and First Nation engagement, including the development of cooperation protocols and benefit agreements for existing and new energy projects in Yukon. Hector Campbell has lived in the Yukon since 1990 and is currently part of the Senior Management Team at Yukon Energy as the Director of Resource Planning and Regulatory Affairs. Hector received a Bachelor's Degree in Mechanical Engineering from the University of Calgary in 1974 and has practiced as a Professional Engineer since 1976. In 2009, Hector received a Masters of Business Administration degree, with a focus on energy, from the University of Athabasca. Hector has been a member of the Whitehorse Chamber of Commerce for 21 years and is the past Chair of the Whitehorse Chamber of Commerce Board of Directors.

Jim Burpee

Jim Burpee was appointed President and Chief Executive Officer of the Canadian Electricity Association (CEA) in February 2012. As President of CEA, Mr. Burpee acts as spokesperson on issues of national concern to the electric utility industry. Jim has a long history with the electricity industry both in Canada and globally. He worked for Ontario Hydro and its successor company, Ontario Power Generation (OPG) for over 31 years. He worked in a senior executive capacity for over half that time in a number of roles, including having responsibility for all of OPG's non-nuclear generation fleet, Energy Markets, and Corporate Development. Jim also has three years of senior executive experience in Ontario Hydro/OPG's nuclear generation business at both Bruce and Pickering Generating Stations. His prior industry experience includes having served on the Board of the Canadian Electricity Association as a Director from 1993 to 2008, including one year as Chairman. Most recently, Jim served as Chief Executive Officer at Bridge Renewable Energy Technologies Inc., a company which marketed Biomass Gasification Electricity Systems primarily in the developing world. Jim graduated from the University of Toronto with a BASc in Mechanical Engineering. He is a member of Professional Engineers Ontario and the Institute for Corporate Directors.

Joe Arvai

Dr. Joe Arvai is the Svare Chair in Applied Decision Research in the Institute for Sustainable Energy, Environment, and Economy at the University of Calgary. In addition to his academic appointment at the University of Calgary, he is a member of the U.S. Environmental Protection Agency's Science Advisory Board, and the U.S. National Academies Board on Environmental Change and Society. Joe is also a Senior Scientist with the not-for-profit Decision Science Research Institute, which is based in Eugene, OR. He has also worked as an advisor to various government agencies and non-profit groups, NASA, the International Energy Agency, and Natural Resources Canada. Dr. Arvai's research focuses on advancing our understanding of how people process information and make decisions, both as individuals and in groups. A second objective of his research is to develop and test decision support tools that can be used by people to improve decision quality across a variety of social, environmental, and economic contexts.

JP Pinard

JP Pinard has been a wind energy prospector for about 17 years and has installed over 40 monitoring stations in communities and mountaintops in the Yukon, the NWT and other regions. JP is a mechanical engineer (B.Sc. Waterloo, 1991) and has received a PhD on the study of wind climate in mountainous terrain at the University of Alberta (2008). The bulk of JP's work involves the assessment of wind energy potential in remote communities. Among many ongoing projects JP is presently focussed on developing a wind energy project for the Kluane First Nations in Burwash Landing, Yukon.

Leanne Robinson

Leanne Robinson has worked for the past two years for the Arctic Energy Alliance giving energy efficiency and renewable energy advice to individuals, businesses and communities, and also conducting commercial building audits, and northern energy research and monitoring. Leanne completed an M.A.Sc. in Building Engineering from Concordia University in Montreal with a focus on building-integrated solar systems, and a B.A.Sc in Mechanical Engineering at Queen's University in Kingston, Ontario. She is a Registered Professional Engineer, a LEED (Leadership in Energy and Environmental Design) accredited professional and a Certified Energy Auditor (CEA) with the Association of Energy Engineers. Leanne has 5 years of both local and international energy-related experience.

Lesley Cabott

Lesley Cabott is the Community Sustainability Practice Leader and Engagement Specialist for Morrison Hershfield. She has over 20 years of experience as a community planner identifying community social impacts and opportunities, and engaging communities, governments, First Nations, businesses and non-government organizations through plans, policies and research. Lesley has held senior management positions in both the private and public sectors. Much of Lesley's current work has focused on developing consultation and engagement processes that encourage participation and result in meaningful outcomes for all involved. Lesley has won awards for her public engagement and planning successes from the Planning Institute of British Columbia, the Yukon Energy Corporation, the Association of Yukon Communities, the Association of Consulting Engineers of BC, and most recently from the Canadian Electricity Association that presented her with an Excellence Award for conducting the Yukon Energy Charrette in May 2011.

Mark Henry

Mark is an energy planner for the Government of the Northwest Territories. Much of his professional life has focused on community based energy planning, including 6 years as the Energy Coordinator at the City of Yellowknife, in addition to time spent at the Arctic Energy Alliance. This work has exposed him to the challenges of building sustainable energy options in the northern context and as a result has come to the conclusion that we have choices, but no "easy button". Away from work Mark enjoys designing and building northern appropriate houses and is in the process of constructing his second master piece for his young family.

Myra Berrub

Myra Berrub is the Manager of Energy Services at the NT Power Corporation. She started at NTPC in 2003, focusing on business and energy development. In the context of energy development, Myra has led numerous emerging energy demonstration projects, including gas-fired CHP micro turbines in Inuvik, hydrokinetic turbines, and most recently, solar PV in Fort Simpson. Prior to moving north, Myra spent 5 years working with small startup companies, developing and promoting new energy technologies, focusing on research and development, and business planning. She is a Professional Engineer with a Masters in Biosystems Engineering from the University of Manitoba. Outside of work, Myra is kept busy chasing after her two and four-year olds.

Peter Tertzakian

Peter Tertzakian has over 25 years of experience in the energy industry and is widely regarded as an energy historian, analyst and futurist. Peter's two books, A Thousand Barrels a Second and The End of Energy Obesity provide insight into the dynamic world of energy through a thoughtful and highly readable examination of economic, environmental and geopolitical pressures. Peter has an unparalleled understanding of the energy sector, having begun his career as a geophysicist in 1982. He spent 8 years immersed in field operations, seismic data processing and geophysical software development. Peter moved from oil & gas to the financial sector in 1990. For 20 years he has been analyzing technology and energy-related businesses. Peter's unique background in geophysics, technology, economics, and finance is reflected in his work as an historian, analyst and futurist.

Shaleen Woodward

Shaleen Woodward is Executive Director of Devolution Implementation for the Government of the Northwest Territories. She holds Bachelor's and Master's degrees in Sociology from the University of Saskatchewan, with an academic focus on labour markets and social change. Ms. Woodward is a long time resident of the NWT with extensive senior government experience working on issues and agreements of import to the North, including the UN Convention on the Law of the Sea and Off-Shore Rights, NWT Northern Boundaries, Board Reform, the NWT Lands and Resource Devolution Agreement-in-Principle and the negotiation and implementation of previous federal transfers related to Airports and Human Resources.

Rob Marshall

Rob Marshall, an independent consultant and long term resident of Yellowknife, has 22 years of experience in Canada's north working with all levels of government, not-for-profit organizations and in the private sector. Rob has worked in senior roles in several agencies including the NWT Public Utilities Board, the Arctic Energy Alliance and the Wek'eezhii Renewable Resources Board. Concurrently, he has also run his own consulting firm since 1993. Much of Rob's focus over the last 22 years has been on northern energy and environmental issues. The scope of this work has varied from the territorial to the community level and has included wildlife management, energy policy, energy efficiency, renewable energy technologies, community energy planning, regulation and climate change. Rob was educated at the University of Alberta and holds a Bachelor of Commerce degree and a Master of Arts in Economics.

Bryan Pelkey

Bryan received a degree in commerce with a major in economics from University of Saint Mary's in 2003. He worked for two years in the New Brunswick Department of Finance before moving to the New Brunswick Department of Energy, where he worked for four years in the renewable energy field. Bryan came to the NWT in May 2010 and began working with the NWT Department of Environment and Natural Resources where his work focuses on implementation of the NWT Biomass Energy Strategy.

Tom Hoefer

Tom Hoefer is the Executive Director of the NWT and Nunavut Chamber of Mines. Tom completed undergraduate studies in Geology at the University of Saskatchewan and obtained his Master's Degree in Mineral Exploration from Queen's University. He has had a long and successful career working with both industry and government in promoting and advancing the North's important resource industry and his experience encompasses exploration, mining, regulation and sustainable development.

Wade Carpenter

Wade Carpenter is an Alternative Energy Specialist with the Government of the Northwest Territories. For the last seven years Wade has been working with residents, businesses and communities to help deploy renewable energy systems through the Alternative Energy Technologies Program. Wade previously worked as a high school science teacher in Yellowknife and initiated the NWT's first public grid-interconnected solar PV array (2 kW) at Sir John Franklin High School in 2003. Since then he has helped deploy over 200 kilowatts of solar PV in both off-grid and grid interconnected locations throughout the NWT. Wade also has an interest in developing community wind-diesel systems and worked on the Tuktoyaktuk wind project from 2007-2011. Wade has lived off the grid for almost 10 years and uses solar PV to electrify his home for eight months a year.

Appendix B - Working Group List

	Name	Position	Organization
1	Myra Berrub	Manager	NTPC-Energy Services
2	Sara Brown	CEO	NWT Association of Communities
3	Wade Carpenter	Alternative Energy Specialist	ENR-Climate Change Programs
4	Philip Duguay	Senior Analyst	ITI-Energy Planning
5	Matthew Kennelly	Energy Management Specialist	PWS-Technical Support
6	Peter Lennie-Misgeld	Manager	NT Energy-Hydro Advancement
7	David Mahon	Manager	NT Energy-Hydro Development
8	Bryan Pelkey	Alternative Energy Specialist	ENR-Climate Change Programs
9	Michael Ball	Economic Policy Analyst	Finance
10	Doug Ritchie	Board Member	Ecology North
11	Darha Phillpot	Coordinator, Protected Areas Strategy	ENR-Wildlife Division
12	Geraldine Byrne	Officer-Business and Energy Development	NT Energy
13	Remi Gervais	City of Yellowknife	Energy Coordinator
14	James Tolley	Senior FMB Analyst	Finance
15	Mark Henry	Senior Analyst	ITI-Energy Planning
16	Leanne Robinson	Energy Management Specialist	Arctic Energy Alliance
17	Irene Vasa	Resource Economist	ITI-Minerals, Oil and Gas Division
18	Linda Todd	Program Coordinator	Arctic Energy Alliance
19	Andrew Stewart	Manager of Project Planning	NT Energy

Appendix C – Charrette Participant List

Team 1	*Team 2*	*Team 3*	*Team 4*	*Team 5*
Green Smiley Face	**Blue Smiley Face**	**Orange Smiley Face**	**Red Smiley Face**	**Yellow Smiley Face**
Phil Duguay	Mark Henry	David Mahon	Andrew Stewart	Peter Lennie-Misgeld
Joseph Arvai	Robert Schmidt	David Malcorn	Ben McDonald	Douglas Bessette
Paul Manson	Tim Weis	Mike Filipowitsch	Bill Reeben	Bob Bromley
Colin Steed	Deaon Hope	Lillian Hvatum-Brewster	Laura Carlson	Tom Deleff
Andrew Robinson	John Carr	Jaswin Dhillon	Jim Burpee	Elaine Carr
Nasim Awan	Neela Naidoo	Phil Moon Son	Michael Nadli	Nina Larson
Dahti Tsetso	Daniel McNeely	Evelyn Krutko	Danny Gaudet	Mike Williams
Leonard Kenny	Dennis Romanson	Hendrik Falck	Merven Gruben	Darrel Beaulieu
Amelra Atkin	Steven Outlet	Mark Heyck	Tom Hoefer	Jim Stevens
	Terry Halifax	Clarence Wood	Chris Westwell	

Team 6	Team 7	Team 8	Team 9	Team 10
Light Purple Smiley Face	**Blue Star**	**Purple Star**	**Shiny Red Star**	**Red Star**
Geraldine Byrne	Myra Berrub	Bryan Pelkey	Wade Carpenter	Leanne Robinson
Kelly Cumming	Linda Golding	Lisa Kenney	David Krutko	Joe Handley
J.P. Penard	Bruce Elliot	Michael Ball	Dwayne Wohlgemuth	Kirk Dolphus
Jake Heron	Patrick Bowman	Ken Dies	Drew Farmer	Dwight Redden
Debbie Gordon-Ruben	Rafe Smith	Don McCallum	Hector Cambell	Dave Nightingale
Ray Ruben	John Ritchie	Matthew Good	Joe Acorn	Jeremy Armitage
Taylor Zeeg	Larry Baren	Tyler Inuktalit	Lori Ann Lennie	Sudhir Jha
Matt Kennelly	John Ketchurn	Leon Andrew	Gregory Morach	Tom Makepeace
Hughie Graham	Sonny Zoe	Keith Morrison	Floyd Roland	Terry Kunkel
Janet Bayah		Ingrid Morin	James Tolly	Michael Corbet
Mike Stuhec				John Hazenberg

Team 11	Team 12	Team 13
Green Star	**Green Star**	**Purple Smiley Face**
Remi Gervais	Linda Todd	Darha Phillpot
Brad Mapes	Jim Sparling	Louie Azzolini
Doug Ritchie	Jack Van Camp	Jan Larson
Duane Morgan	Emanuel DaRosa	Julian Gacek
Lee Haust	Irene Vasa	Eddy McKay
Claire Singer	Peter Clarkson	Philip Blake
Tommy Betsidea	Chris Westwell	
Donald Andre	Cory McLachlan	
Tina Gargan	Joseph Mackenzie	
	Daryl Dolynny	

Appendix D – Stakeholder Interview Remarks

To gather a broader understanding of the energy topics important to residents of the NWT, a number of interviews were conducted with key stakeholders who represent organizations affected by energy issues. Care was given to ensure a representative range of perspectives were solicited. Interviews were conducted with stakeholders from large and small communities, representing a number of different regions, agencies, government units, utilities and business organizations. The stakeholder interviews were conducted in October and November of 2012. An anonymous summary of the ideas expressed by the stakeholders during the interviews is grouped by major theme below:

Development and Growth

- There is a divide in our community between those who want resource development and those who want a more traditional way of life. The younger people are more likely to want resource development because they want jobs. There is a shift towards supporting more economic development.
- The north is a virtually untapped resource with lots of resource potential; investments in energy infrastructure need to be made to achieve this potential.
- An economic/resource development vision is necessary to build hydro infrastructure that will support and encourage northern investment. Both the GNWT and federal government must be willing to take a risk.
- Developed mines must provide revenue to support the bankable business case for a hydro project - this is the 30 year business case. Government must look at the royalty revenue potential of new mines that would serve as part of the business case for a longer term investment. If they invest in energy infrastructure that will stimulate resource development over the next 50 to 80 years what is the value of this infrastructure? Is it worth up the front risk? History says 'yes' in the NWT. Government of Canada needs to be involved in this kind of investment.
- The mining and oil and gas sectors have very different energy requirements. The opportunities for serving these industries must be clearly defined.
- The energy planning process needs to get ahead of the resource development process. It is harder to present energy options to established mines because of the length of time it takes to develop energy projects versus the mine's life. Energy options need to be presented as part of the mine development process.
- The Power System Plan needs to be flexible and respond to projects that are in the regulatory phase in order to properly serve a project.

- Under the 'Quebec model', the Crown Corporation provides power to the resource sector at very low rates. It is part of their economic development strategy. Energy is the second or third largest concern of such large project developers. In the NWT context, a service provider has to beat roughly 25 cents per kilowatt hour to become an attractive partner.
- There is significant risk of failure throughout the mine development stage, and a "strong sensitivity" to regulatory hurdles. Mines are looking for ways to remove risk. They are not going to wait for a transmission line to be built when they need to start operations. NT Energy would need to prove it can remove risk from the operation in order to forge a successful partnership arrangement.
- Mines focus on mining; they would be happy to get out of the 'non-core' components of the mine's operations such as power generation.
- Why is Nico mine not considering connecting to the Snare System when they are so close? They don't want to take on the uncertainty and risk of going through the permitting process with hydro as their preferred option.
- More regulatory certainty and more partnerships with Aboriginal organizations would both be viewed as great bonuses to any project developer.
- We have a good understanding of the general areas that are rich in resources and represent the area where future mines will be located. We need to develop a map with different layers that includes resource potential areas (high level), identified potential mine locations and electricity resource potentials. There are many opportunities in Nunavut just over the border from the NWT. The mapping exercise would be "worth doing twice a year".
- Roche Bay, Nunavut wants to bring in liquefied natural gas (LNG) to generate power and heat. Both LNG and nuclear power should be options looked at by NT Energy.
- The Investment and Economic Analysis unit of ITI has an economic model that assess the spin off effects of a new mine. They should be a part of future resource energy planning. The unknown is how resource royalties will accrue to the NWT after devolution. Devolution should provide a platform for exploring new opportunities.
- There was only two years of production left at Giant Mine when Snare was completed. Government knew that future resource development in the area would necessitate hydro. The biggest complaint for mining proponents is the lack of such critical infrastructure.
- NT Energy needs to catch mine developers when they are in the "technical reports" phase. Options for power supply are typically discussed during this phase. Technical reports are filed in the System for Electronic Document Analysis and Retrieval (SEDAR).
- NT Energy would also be wise to develop business ideas that reduce costs at existing mines.
- Our community wants to develop its economy with a focus on tourism, but is being held back because of the cost of power. Infrastructure can be built but it is too costly to operate because of the price of power.

Local and Renewable

- "All of our energy should be locally produced; we have the resources to do it. The biggest barrier is peoples' mind sets."
- Wood pellets are very expensive to ship from the south, we need to concentrate on utilizing local resources.
- "We need to produce the right end-product (biomass) that is the most economical. Producing wood pellets from a non-waste product is not economical."
- We must develop local biomass potential but need to remain connected to the southern wood pellet suppliers as a backup resource. We have to be careful not to alienate our existing relationships with southern supplies while developing the local industry.
- There are huge economic spin-off effects of developing a local biomass industry; green jobs and money remaining in the NWT.
- There is too much focus on larger scale hydro to support resource development. Focus must be on smaller scale community projects such as small scale hydro development.
- Hydro can't be developed for residential market - demand isn't great enough. Industrial development must be leveraged to support infrastructure
- Our community is looking at the feasibility of a central heating system run on wood pellets. "People wonder why they would bring wood pellets from the south when they could use local cord wood."

Policy

- There is demand for distributive generation today and it will be increasing with technology advancement in the future. The GNWT should develop policies that support this versus resisting the inevitable.
- The Territorial Power Subsidy Program (TPSP) hides the true cost of power and creates a disincentive to invest in energy efficiency or conservation. It counters any government investment in energy efficiency.
- The Territorial Power Subsidy Program creates an economic incentive to use more power in diesel communities and less in hydro; it should be the opposite to improve the health of the utility.
- The Energy Plan must set targets for both GNWT operations and the Territory as a whole. Follow-up must take place to ensure progress is being made.
- The GNWT must start collecting fuel sales data for the purposes of developing comprehensive and accurate energy profiles. This information is essential to track progress of the Energy Plan. The information needs to be collected at the community level and provided to communities so they can track the progress of their Community Energy Plans. Either work within the existing legislation or, if needed, pass new legislation to realize this essential need.

- "Very few people took advantage of Arctic Energy Alliance audits when they were offered in the area. They do not have the money to make up-front investments." Some kind of financing program could help.
- The GNWT should implement energy efficiency standards for new construction. This is what the City of Yellowknife has done. The Housing Corporation is doing a good job when they develop properties, but more can be done.
- The GNWT funding programs have barriers for some small communities. In most cases, expensive engineering studies are required to access funding. The studies often cost more than the final project budget. There has been direction from our Band office to skip the funding application process and invest directly in a design/build process.
- In Germany there is a policy that says all biomass that is harvested in the country (roadside waste, etc.) must be used. We have great potential with all the roads, seismic work, fire breaks and hydro lines that harvest wood that today is left to rot.
- The Government needs to consider 'P3' options to address capital budgeting short falls when investing in biomass boilers.
- The GNWT needs to invest in grid expansion to support economic development. The territory operates on a boom bust cycle; government has a role to play in avoiding the bust cycles.

Awareness

- No one really knows what the Public Utilities Board's (PUB) roll is. The misconception is that the PUB's role is to keep rates as low as possible.
- Our community is very close to the Taltson hydro project, but community members are confused why power prices are still so high.
- People don't understand how electricity rates are set. There is plenty of misinformation.
- Why do hydro communities subsidize the rates of the diesel based communities? Don't we want a strong disincentive for over-consumption in diesel communities?
- It appears that every time we collectively reduce our power consumption to save money the price goes up to make up the utilities losses. If true it is a disincentive to go green.
- Why can't communities own power generation assets?

Opportunities

- In the South Slave there is an opportunity to heat with hydro.
- There is wind potential in Inuvik that should be explored.
- LNG in Inuvik should be explored as solution to natural gas issue. We must also look into the potential of converting local natural gas to LNG versus developing pipelines that connect to communities. A pipeline is a sunk cost versus an LNG plant that could be moved after a well is run dry.
- There is 400,000 tons of fire-killed biomass currently in the NWT, enough to heat every building for 30 years. If locally harvested, the money would go into the local economy.
- Harvesting local biomass has other spin off effects such as the development of greenhouses for local food production.
- Biomass needs to be sustainably harvested. There are fast growing biomass options such as willows that could be sustainably managed.
- All biomass boilers installed today should have the capacity to burn both pellets and chips; chips from locally-harvested wood and pellets as a security feed stock if chips are not produced.
- Pellets should be shipped to Hay River by rail and barged throughout the north on barge.
- District energy has great potential in communities. A nodal approach needs to be taken where there are small loads; connecting builds and houses in close proximity to each other. Once established at a nodal level they can be connected in the future.
- ATCO wants to invest in hydro development and expanding the grid, including to Alberta. The opportunity is bigger than any one entity's technical and economic capacity, opening the door to partnership opportunities.
- Tuktoyaktuk sits on an abundance of natural gas, but is burning diesel. There is an opportunity to invest in the community to prepare it for the envisioned economic growth that an all weather road and a port would bring.
- There is run-of-river hydro potential in our area and the people want to develop it.
- Demand side management represents an opportunity to reduce emissions in diesel generation communities.

General Comments

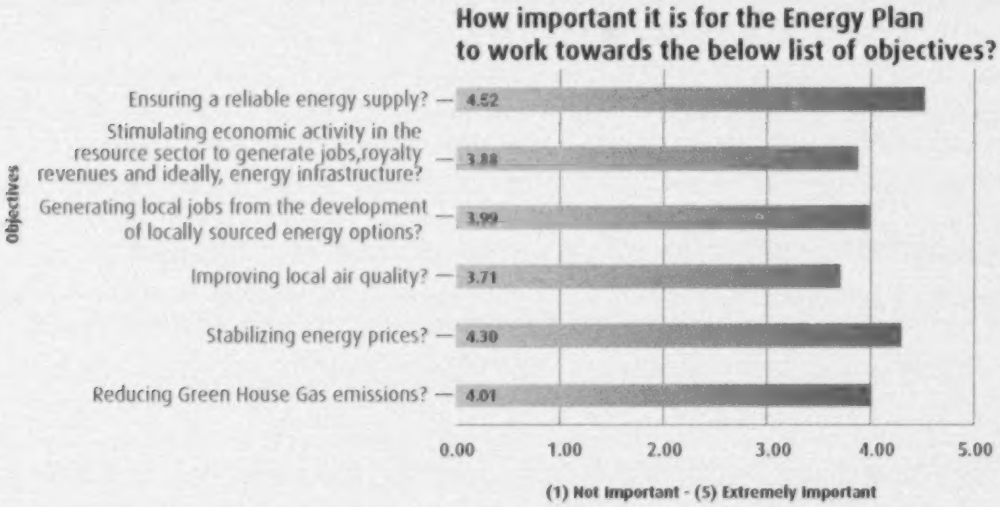
- The energy plan needs to take a balanced approach. Infrastructure investments need to be financially proven.
- Energy is a major influencer of the cost of living in the north. When it is too high people will not invest or stay in the north.
- The PUB's role is limited in the NWT, it could be broader to include heating oil, etc.
- We are interested in investing in energy upgrades such as more insulation, but it is hard to get trained professionals to do the work.
- Lots of people burn cord wood. It is cheap and gathering wood is an activity that brings families together on the land.
- People do not want to spend the time to clean their own wood pellet boilers or stoves. People need to work in a more co-operative fashion to get the biomass market to work.
- Development must be sustainable.
- The large land mass and small population is a major challenge to energy planning in the NWT.
- Communities want to be involved in the energy solutions.
- The utility's ability to invest in innovation is restricted by regulation.
- Renewable energy options must be viewed as a complement and not a complete substitute.
- Tuktoyaktuk is dealing with the effects of climate change. They are expecting people in the south to reduce greenhouse emissions, but they are chugging away on diesel. "It isn't right!"
- Transportation represents a large percentage of the NWT energy profile, but there are limited options to address the issue.
- There needs to be stronger linkages between the Energy Plan and the GHG Strategy.

Appendix E – Feedback from Public Survey Process

The public survey asked twelve questions, collecting demographic information and input from values/objectives based questions.

Below are results from two of the key questions presented in the survey:

Question: How important is it to you that GNWT energy initiatives work towards each of these objectives?



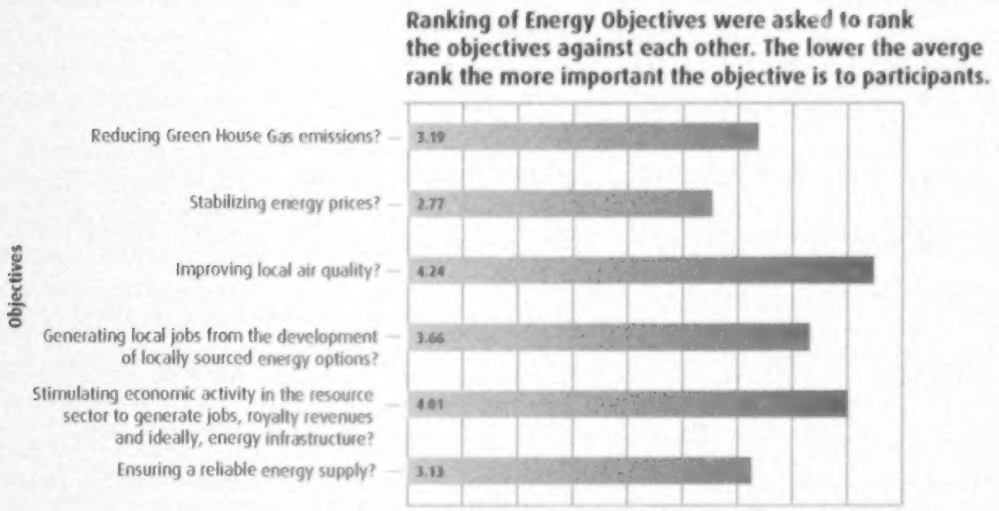
Question 8

Participants were asked how important it is for the Energy Plan to work towards the below list of objectives.

Answer Options	Not at all important		Low importance		Moderately important		Very important		Extremely important		The option is unclear to me		Rating Average
	%	# of votes	%	# of votes	%	# of votes	%	# of votes	%	# of votes	%	# of votes	
Reducing Green House Gas emissions?	4%	10	6%	16	17%	48	34%	96	40%	112	0%	0	4.01
Stabilizing energy prices?	1%	2	3%	9	14%	40	29%	83	52%	146	1%	2	4.30
Improving local air quality?	4%	12	12%	34	23%	64	32%	89	28%	79	1%	4	3.71
Generating local jobs from the development of locally sourced energy options?	3%	8	5%	14	19%	54	37%	105	35%	100	0%	1	3.99
Stimulating economic activity in the resource sector to generate jobs, royalty revenues and ideally, energy infrastructure?	3%	9	8%	23	23%	64	30%	84	35%	100	1%	2	3.88
Ensuring a reliable energy supply?	0%	1	1%	2	8%	22	30%	85	60%	169	1%	3	4.52

The final question was designed to allow the respondent to raise any additional objectives that they thought were important to the development process for the 2013 Northwest Territories Energy Plan. Below are some of the responses.

Question: Please rank the following list of energy objectives from order of most important (1) to least importance (6).


Ranking of Energy Objectives were asked to rank the objectives against each other. The lower the averge rank the more important the objective is to participants.
Objectives
Reducing Green House Gas emissions?
3.19
Stabilizing energy prices?
2.77
Improving local air quality?
4.24
Generating local jobs from the development of locally sourced energy options?
3.66
Stimulating economic activity in the resource sector to generate jobs, royalty revenues and ideally, energy infrastructure?
4.01
Ensuring a reliable energy supply?
3.13

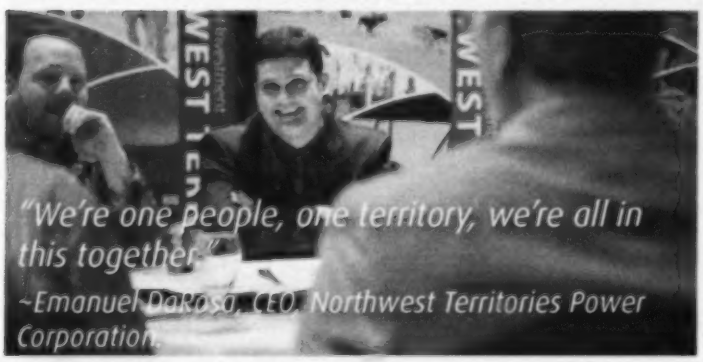
Question 9

Please rank the following list of energy objectives from order of most important (1) to least importance (6).

Answer Options	Most Important 1		2		3		4		5		Least Important 6		
	%	# of votes	%	# of votes	%	# of votes	%	# of votes	%	# of votes	%	# of votes	Rating Average
Reducing Green House Gas emissions?	28%	77	15%	40	15%	40	10%	28	15%	40	17%	46	3.19
Stabilizing energy prices?	27%	74	26%	70	14%	38	16%	44	9%	24	8%	21	2.77
Improving local air quality?	4%	10	11%	30	20%	55	14%	37	25%	68	26%	71	4.24
Generating local jobs from the development of locally sourced energy options?	10%	27	14%	37	17%	45	29%	78	22%	60	9%	24	3.66
Stimulating economic activity in the resource sector to generate jobs, royalty revenues and ideally, energy infrastructure?	8%	23	13%	35	17%	46	17%	45	21%	56	24%	66	4.01
Ensuring a reliable energy supply?	22%	60	22%	59	17%	47	14%	39	8%	23	16%	43	3.13

Question: Do you have any other objectives the Energy Plan should focus on that were not included in the survey? If so, please indicate if it is of Low Importance, Moderately Important, Very Important or Extremely Important.

- Extremely important – Maximizing the use of existing energy consumed. Many small communities used diesel power stations for electricity generation. These stations lose large amount of waste heat energy into the surrounding environment. Small communities want public infrastructure like swimming pools and could use community green houses to offset some of the high costs of produce. By coupling these structures to the power plant, the waste can be used to compliment the operation of the swimming pool and/or green house.
- Public education is important – more work needs to be done or incentives given to get people to understand how to stop wasting so much energy! Create a more energy efficient home, understand where their energy comes from, how wood burning and pellet burning stoves are locally renewables heating options.
- local hydro as a way of offsetting high costs and therefore allowing an affordable way for resource development in our communities by way of a renewable energy source should be a priority. this would put primacy on residents and the affordability of life in the north, and open up these growth sectors while balancing the environment. this is very important
- Diversifying the sources of energy Very Important
- I think it is extremely important that the NWT focus on energy conversation first. You can put all the sexy solar systems you want out there, but it doesn't matter if people keep wasting energy.
- Energy Efficiency is a high priority for me.
- I think this energy plan should include a very strong focus on retrofitting existing housing stocks throughout the NWT. this could significantly reduce GHG emissions and add to the local economy if training is included
- Finding local solutions instead of a territorial-wide option. Every place is unique, so this is very important.
- NWTHC and GNWT should lead the way in demonstrating energy efficiency practices.
- Develop alternative, renewable energy resources where feasible. Provide residential and business incentives to further streamline these processes.

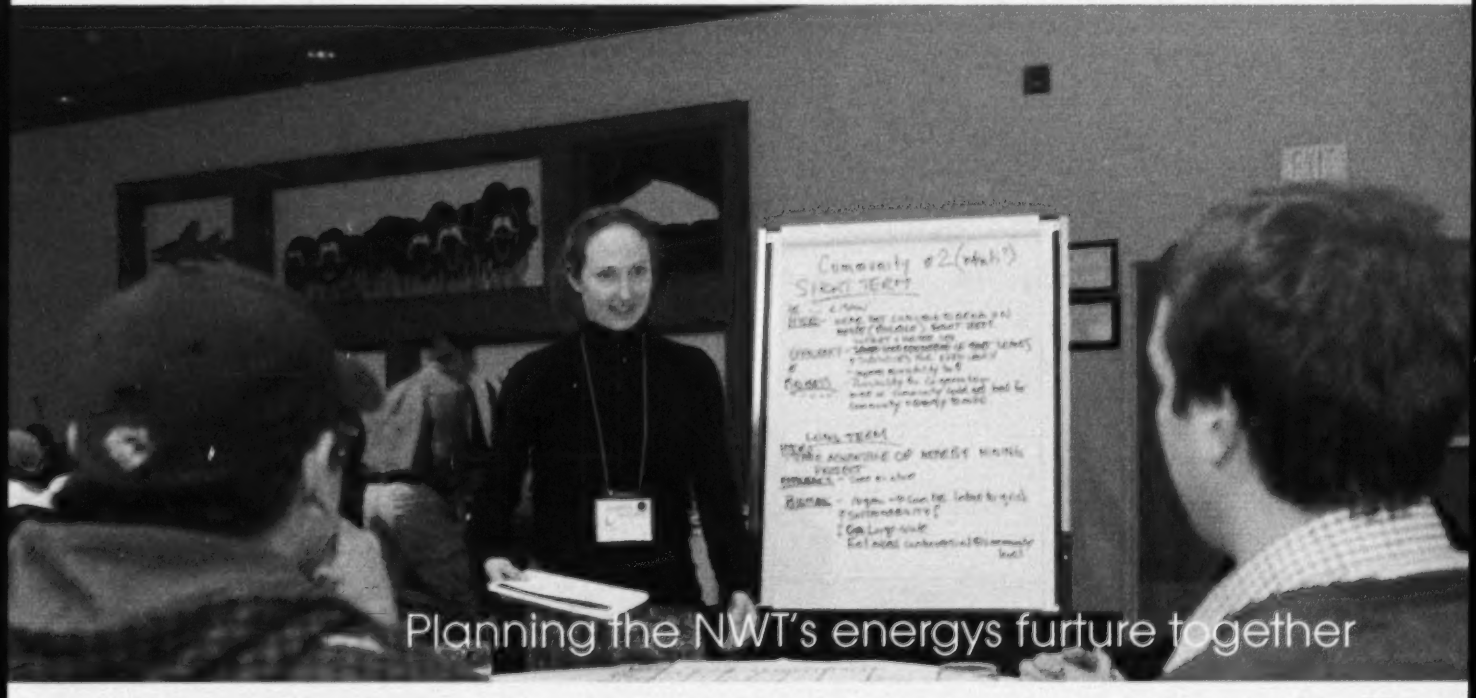


"We're one people, one territory, we're all in this together."

~Emanuel Dakoso, CEO, Northwest Territories Power Corporation

- Taltson Dam should be expanded and brought to deliver to a much wider grid than it does currently.
- Expand the Taltson System Sell power into Sask, AB Grid run power lines to YK and other communities
- LONG term planning is the key...
- Energy Self-Sufficiency – Extremely Important
- A very important role of the energy plan should be public education to remind people that their individual choices impact the costs to everyone. Also to remind people that choosing to live in larger homes results in higher energy use - and that to reduce energy use we need to learn to live within the means that we wish to spend (ie. you can't ask for lower costs and then when you consume more complain about the cost of living).
- Here is an opportunity for northern innovation. Let's get to it!
- Need for standards and law to implement good energy Policy.
- Involving first nations. Very Important Building partnerships to bring the best of multiple groups together. Moderately important
- There should be a new focus on renewable energy sources, including biomass, mini-hydro, solar and wind, as well as energy conservation. NWT has huge potential for biomass energy.
- Looking at the energy infrastructure in the NWT on a holistic basis and removing the barriers in the way of doing things that make economic and environmental sense that are not done because they involve multiple departments with differing budgets and agendas.
- There is importance in providing local communities with work and contracts. However, extortion of this principle has been evident in the past. Employing local people and businesses should not equate to unreasonable pricing and substandard results.
- Creating a way to evaluate energy projects which are based on the values identified by the people living in the NWT and not based on current politics.
- Reducing subsidization of energy, and promoting efficiency and local energy sources to a greater degree.
- Objectives must be developed using proper engineering principals and methods, financially sound, and presented as a responsibly risk managed business case. This is extremely important.

- Ways of increasing the demand for switching to the use of biomass
- Important: Stabilizing - upgrading? - the infrastructure we now have in order to deliver reliable, efficient service. Important: discussing and activating alternative power services in all communities of the NWT Important to moderate: discussion around micro grids
- more developments of Hydro resources and potential for cheaper power rates
- Responsible use of energy and conservation should be a focus
- Objectives: build energy infrastructure (transmission, hydro generation) - leverage energy infrastructure to attract economic development - profits from the two objectives above can be used to invest in local renewable energy sources
- the energy plan should be forward thinking- foresee the end of fossil fuel energy in the next hundred or so years and proactively fund a) research into alternative, low-polluting energy sources; b) invest in changing the public paradigm around consumption – so that measurements of quality of life do not rely solely on economic indicators. Uncouple quality of life from the dependence on a growth economy.
- More involvement from Northern Communities and Aboriginal governments
- Working with local governments to develop energy projects – extremely important
- Really look into home heating improvements, most of our emissions are from inefficiently heated homes



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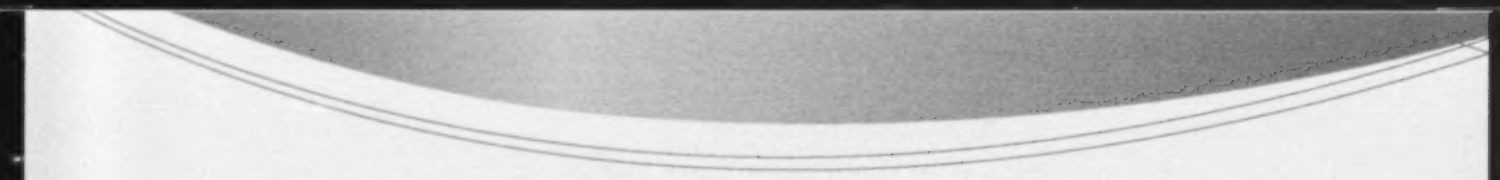

2012 NORTHWEST TERRITORIES

energy charrette

Planning the NWT's energy future together

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November 20nd 23rd

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